

THE USE OF SIDE-SCAN SONAR FOR THE IDENTIFICATION AND MORPHOLOGY OF SUB-TIDAL OYSTER REEFS IN GREAT SOUTH BAY

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A Geophysical survey including side-scan sonar and multibeam sonar were conducted in Great South Bay, Long Island, NY in December of 2002. The goal of this survey was to identify and evaluate the morphology of sub-tidal relict oyster reefs and highlights the importance of geophysical surveys in the marine environment. For many years, the sea floor of Great South Bay has been considered a featureless environment comprised almost entirely of sandy sediments. Jones and Schubel (1980) had found that sandy sediments made up greater than 75% of the seafloor, with the majority of the remaining 25% being mud and mud-sand transition environments. More recently, a limited side-scan sonar survey conducted in 1996 by Cerrato et al. (1998) and a multibeam survey by Flood (unpublished), found patches of shell among the more dominant sand and mud environments. These patches of shell appear as slightly raised mounds of higher reflectivity in the multibeam imagery and side-scan mosaics, respectively (Figure 1). These features have not been previously identified due to discreet sampling methods that may miss discreet structures such as oyster reefs. The current survey has identified over a dozen possible relict oyster reefs comprising over 2.5 million square meters of the bay bottom.

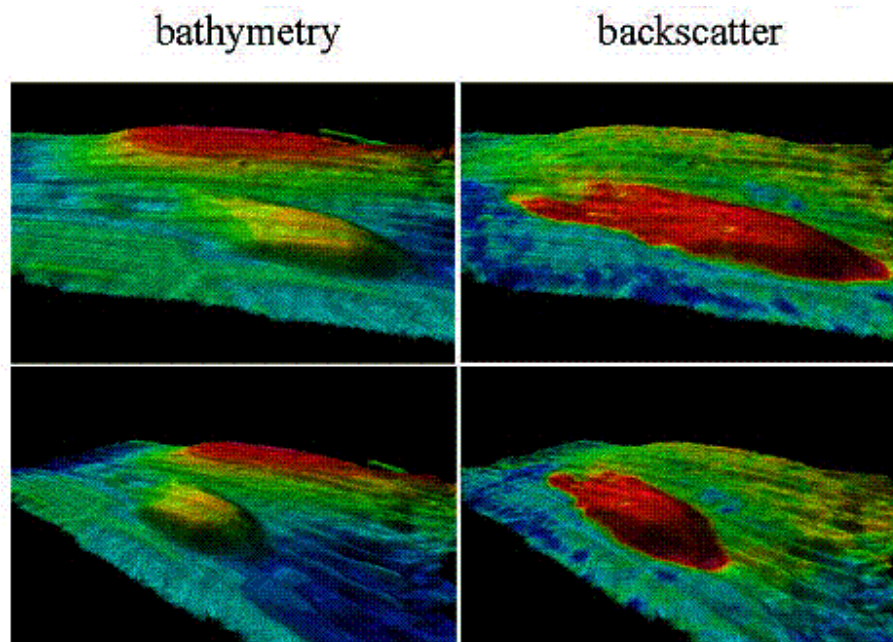


Figure 1. Multibeam image of a possible relict oyster reef (in foreground of image) in Great South Bay. Warmer colors indicate shallower water in bathymetry and higher intensity backscatter signal. The mound is 490 m long, 185m across, with a vertical exaggeration of 100:1.

References

Cerrato R., Flood R., Kassner J., Larson A., and Maher N., 1998. Using Side-Scan Sonar to Identify Hard Clam Habitats: A Comparison to Traditional Sediment Characterization Approaches. Organism-Sediment Interactions Symposium, October 23-25, 1998. Belle Baruch Institute, Georgetown, South Carolina.

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Jones, C. R. and Schubel, J.R. 1980. Distributions of Surficial Sediment and Eelgrass in Great South Bay, New York (from Smith Point, west to Wantagh State Parkway). Marine Sciences Research Center Special Report No. 39. Reference #80-6. 23 pp.